REMARKS

Applicants acknowledge receipt of an Office Action dated March 14, 2007. Claims 1, 3, 4, 6, 8, 9, 11, 13, 14, 16, 18, 19, and 22 remain pending in the application.

Applicants respectfully request reconsideration of the present application in view of the reasons that follow.

Rejection Under 35 U.S.C. § 103

On page 2 of the Office Action, the PTO has rejected claims 1, 3, 4, 6, 8, 9, 11, 13, 14, 16, 18, 19, and 22 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Japanese Publication 2002-283093 (hereafter "JP '093"). Applicants traverse this rejection for the reasons set forth in their previously filed responses and for the reasons set forth below.

In order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, prior art references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Applicants' disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

In addition to the arguments set forth in Applicants' previously filed responses, Applicants wish to present the following supplemental remarks.

Applicants note that JP '093 fails to teach or suggest a lead free joining material "wherein an average concentration of the additive element in the whole lead-free joining material is in a range of 0.6 % to 1.0 % by weight" as recited in independent claims 1, 6, 11, 16, and 22.

In the outstanding rejection, although the PTO acknowledges that there are differences between JP '093 and the present claims, including features which are completely missing from JP '093's disclosure, the PTO has taken the position that one skilled in the art would reasonably expect existence of these features in the product of JP '093. Applicants respectfully disagree. As stated in the final Office Action, JP '093 merely discloses 1-3 wt%

of bismuth and does not disclose the presently claimed range of 0.6 to 1.0 wt%. While the range disclosed by JP '093 maybe share a common end point, 1 wt%, where the lower limit of JP '093's range touches the upper limit of the claimed range, a *prima facie* case of obviousness based on overlapping ranges maybe rebutted by showing that the art, in any material respect, teaches away from the claimed invention. Please see M.P.E.P. 2144.05 III.

In this regard, Applicants note that the disclosure of JP '093, particularly the discussion in paragraph [0015], teaches away from the presently claimed invention. Specifically, paragraph [0015] recites, "as shown in Fig. 1, in a case where bismuth is added in the lead-free joining material, if the amount of the additive goes beyond about 1 wt%, surface tension is reduced because bismuth dissolves in the solid of tin, and wetting time at a time of heating the alloy is reduced. If about 1 wt% or less, the effect of addition of bismuth does not become sufficient and wetting time of the alloy is prolonged, therefore it is not preferable." Wetting is one of the significant properties of joining materials and the time required for wetting is required to be shorter in order to facilitate joining. Therefore, JP '093's disclosure teaches away from the presently claimed range of 0.6 to 1.0 wt%.

As the disclosure of JP '093 teaches away from the presently claimed invention, Applicants submit that claims 1, 6, 11, 16 and 22, as well as each of the claims which ultimately depends from these claims, are non-obvious and that the outstanding rejection under §103 is improper and ought to be withdrawn.

In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the outstanding rejection under § 103.

CONCLUSION

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. § 1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date August 14, 2007

By _____

FOLEY & LARDNER LLP
Customer Number: 22428
Telephone: (202) 672-5540
Facsimile: (202) 672-5399

Paul D. Strain
Registration No. 47,369
Attorney for Applicant